

width. The fronds are essentially exstipitate, which distinguishes them from such species as *P. grandissima* (Hayata) Ching. The Indian *Pyrrrosia costata* (K. B. Presl) Iwatsuki and the Philippine *P. splendens* (K. B. Presl) Ching are similar in the frond outline, but the indument is quite different, the scales being dimorphous, the layer of peltate scales being underlain by white, dissected scales with elongate frizzy arms. In *P. princeps* the scales of the lower surface are monomorphous, all like, with numerous, short spreading arms.—C. V. MORTON, *National Museum of Natural History, Washington, D.C. 20560.*

Recent Fern Literature

A COMMENTARY ON SOME TYPE SPECIMENS OF FERNS IN THE HERBARIUM OF K. B. PRESL, by R. E. Holttum. *Nov. Bot. Inst. Univ. Carol. Prag.* **1968**:3-57. June, 1969.—The study of fern types has in some respects only begun. Original specimens were to a certain extent neglected until the twentieth century. The earliest paper that I recall specifically on fern types is that of Christensen in 1910 on some of the types of Swartz. Probably no others were published until 1936, when Weatherby wrote a most valuable paper on the American types of Desvaux, and 1937, when Christensen wrote on the types of Cavanilles and Cesati. In 1954 I began a general study of fern types, which has continued up to the present time. This is a gigantic task I shall never finish, for I estimate that there are in excess of 50,000 fern types to be located and studied. The Czech botanist K. B. Presl described many species between 1825 and 1851. His types have been in Prague ever since but they have almost never been consulted, which is unfortunate since some of his species, although rather fully described for his day, have remained dubious. Dr. Holttum has remedied this by journeying to Prague to locate the Malaysian types, which are among the most important, for most of Presl's new species were based on the Philippine Island collections of Thaddeus Haenke and Hugh Cuming. Presl's herbarium was still unmounted and just as Presl left it when Underwood visited it in 1905, but it is now mounted and filed, partly in the general herbarium of the Bo-

tanical Institute of Charles University and partly in the National Museum, Prague. Holttum gives an interesting account of the history of the herbarium and also of the Haenke collections obtained on the Malaspina Expedition (1789–1794). Holttum's paper gives a commentary on all of Presl's Malaysian collections and gives his current disposition of them. The paper contains a rather large number of typographical errors, which are not at all Holttum's fault but which are attributable to the Czech typesetters' lack of familiarity with English and with some standard botanical practices, such as the setting of new combinations in boldface. The most significant errors I have noted are:

Page 3, paragraph 1, lines 11 and 12 are reversed.

Page 21, line 16: For "Now identified as *Drynaria quercifolia* (Linn.) J. Sm.", read "Now identified as *Goniopteris tetragona* (Swartz) Presl." I obtained the correct reading from Holttum himself, who consulted his original manuscript.

Page 36, line 12: For "1962," read "1862."

The points of interest are far too numerous to mention here, but special mention should be made of the discussion of Presl's genera *Pronephrium* and *Proferea*, the former being an earlier name for *Abacopteris* Fée, if that is recognized as a genus, and the latter a synonym of *Cyclosorus megaphyllus* (Mett.) Ching (= *Thelypteris megaphylla* (Mett.) K. Iwatsuki). Holttum's intensive study of the ferns of this area for more than 40 years renders him uniquely qualified to discuss the taxonomy. I would like to comment only on the treatment of five species, which are mentioned below.

Page 21. *Polypodium plukenetii* Presl is identified as probably identical with *Phymatodes alternifolia* (Willd.) Presl (syn. *Phymatodes nigrescens* (Blume) J. Smith). This misidentification of *Polypodium alternifolium* Willd. with *Polypodium nigrescens* Blume is a mistake of Copeland. Sledge (Bull. Brit. Mus. Nat. Hist., Bot. 2: 144. 1960) has commented that a photograph of the type in the Willdenow Herbarium in Berlin shows that *alternifolium* Willd. is a form of *Polypodium phymatodes* (i.e. *P. scolopendria*) rather than a synonym of *P. nigrescens*. He says that the type

sheet is a small but fertile frond, by which he must have been referring to Herb. Willd. 19637/1 (which is a small, fertile frond); however, there are two other sheets in Herb. Willd., 19637/2 and 19637/3 (all evidently a part of the same collection, India, Klein), and these other sheets are large plants which show that *P. alternifolium* Willd. perhaps equals *Phymatodes banerjiana* Pal & Pal (Amer. Fern Journ. 53: 103. 1963), a species only recently segregated from *P. scolopendria*. I pointed this out to Dr. Pal, but he prefers to keep his species *banerjiana* separate (l.c. 108) on some characters that I can not follow. In any case, *P. alternifolium* is different from *P. nigrescens*; Presl's *P. plukenetii* should therefore be placed as a synonym of *P. nigrescens* and not of *P. alternifolium*. Incidentally, there are plants in cultivation in the United States as *P. scolopendria* that appear to be surely *P. alternifolium*, and such plants are to be expected in botanical gardens elsewhere. The characters of these species are well stated by Pal and Pal.

Page 27. The new combination *Pyrrosia costata* (Presl) Holttum was previously made by Tagawa and Iwatsuki (Acta Phytotax. Geobot. 22: 100. May, 1967). Tagawa and Iwatsuki cite the wrong basionym *Niphobolus costatus* Presl ex Beddome (Ferns Brit. Ind. ad t. 120. 1866, excl. tab.), which is a later use of the epithet *costatus* but which is based ultimately on the same type as *Apalophlebia costata* Presl. All these names are based on *Polypodium costatum* Wall. List no. 265. 1828, nom. nud.

Page 30. *Blechnopsis malaccensis* Presl is referred to *Blechnum indicum* Burm., which should rather be *B. serrulatum* L. C. Richard. In the "Index Filicum, Suppl. 3" Christensen definitely equated *B. indicum* Burm., previously regarded as dubious, with the common and widespread *B. serrulatum*, but the basis for this opinion is unknown. An examination of the type of *B. indicum* Burm. in Geneva shows that this species is by no means the same as *B. serrulatum*, but is, strangely enough, *Asplenium longissimum* Blume, as annotated on the sheet by Mr. F. Ballard, an identification I can confirm. Fortunately the well-known name *Asplenium longissimum* Blume need not be renamed "*A. indicum*" because there exists (but only very recently!) an *Asplenium indicum*

Sledge (Bull. Brit. Mus. Nat. Hist. 3: 264. 1965), an entirely different plant.

Page 33. *Diplazium vestitum* Presl. There were two syntypes cited—*Cuming 333* and *336*. Holttum cites *336* as the "Type," but this should be "Lectotype." He stated that he did not find *333* at Prague, which is probably to be explained by Presl's comment (Epim. Bot. 84. 1851) under his *D. grammitoides*, "*Affinis sed diversa species est D. tenerum ex insula Leyte (Cuming n. 333).*" This indicates either that *Cuming 333* was a mixture in Presl's Herbarium, one sheet being *D. vestitum* and one an undescribed species that he called "*D. tenerum*," or that Presl changed his mind about the status of *333*. Since Holttum did not find *333* filed as *D. vestitum*, it is likely that the latter is true, and that *333* is filed as "*D. tenerum*." Holttum states that *333* is not represented at Kew; however, it is there, filed as *D. "sylvaticum*," (Morton photograph 18620) and I have found it also in Firenze (Morton photograph 16124). A peculiar thing is that J. Smith cited *333* as from Samar, and the Kew and Firenze sheets are from Samar and also the specimen cited by Presl as his *D. vestitum*, whereas the specimen mentioned by Presl as "*D. tenerum*" was said to be from Leyte, which was probably an error, since the same number was not assigned to Cuming collections coming from different islands even though the plants might have been considered the same species. The specimens of *Cuming 333* that I have seen are apparently referable to *D. petiolare* Presl and not to *D. vestitum*, which is more divided and more scaly on the rhachis. *Cuming 336* was fixed as lectotype of *D. vestitum* by Hooker (Second Cent. Ferns t. 46. 1860 and Sp. Fil. 3: 260. 1860), who referred only *Cuming 336* to *Asplenium vestitum* (Presl) Hooker, and cited *333* under *A. sylvaticum* (l. c. 248. 1860).

Page 51. In his early and valuable work on *Stenochlaena* (Gard. Bull. Str. Settl. 5: 259. 1932), Holttum identified a rather common and distinctive Malaysian species as *Stenochlaena laurifolia* Presl (Epim. Bot. 164. 1851), admittedly without having seen either the type or the original description, which is quite understandable, Presl's books being rare and his specimens in Prague very remote

from Singapore, where Holttum was working at the time. Now on seeing Presl's type (*Cuming 226*) he is certain that *S. laurifolia* Presl is a synonym of the common *S. palustris* (Burm.) Bedd., and that the species that he called "*S. laurifolia*" in 1932 needs a name. He remedies this by proposing "*Stenochlaena cumingii* Holttum, nom. nov.—*S. laurifolia* (non Presl) Holttum, Gard. Bull. Str. Settl. 5: (1932) 259; Copel., Fern Fl. Philip. 428." But this is an entirely inadmissible procedure, for one can give a new name only to a validly published species that is in need of a new name; a misidentification is not a validly published species. This is not a new name but a new species, and as such it requires a Latin diagnosis and a designation of a type, neither of which Holttum provides. Therefore, *S. cumingii* Holtt. is a *nomen nudum*, not validly published. Dr. Holttum should provide a proper description and a designation of a type to validate this name, which is needed.—C.V.M.

REVIEWS OF TROPICAL AFRICAN PTERIDOPHYTA, 1, by E. A. C. L. E. Schelpe. Contributions from the Bolus Herbarium, No. 1, published by The Bolus Herbarium, University of Cape Town, Rondebosch C. P., Republic of South Africa, pp. 1-132. 1969. Price 2 Rands.—There are at present no general treatments of the ferns of tropical Africa, although there are some fine regional treatments, such as Madame Tardieu's "Les Pteridophytes de l'Afrique Intertropical Francaise," (1953), pteridophytes in the "Flore du Gabon," (No. 8, 1964), and "Flore de Cameroun," (No. 3, 1964), and Alston's "The Ferns and Fern-Allies of West Tropical Africa," (Suppl. ed. 2, The Flora of West Tropical Africa, 1959). East tropical Africa has been unworked, except for the papers on Ethiopia by Pichi-Sermolli, and so Dr. Schelpe's new treatment will be of great value to students everywhere. This first part discusses the families Grammitidaceae, Azollaceae, Salviniaceae, Vittariaceae, Lomariopsidaceae, Adiantaceae, and Polypodiaceae (sens. restr.). The Grammitidaceae are considered to contain two genera, *Grammitis* and *Xiphopteris* (incl. *Ctenopteris*); my union of these into the single genus is termed by Schelpe "a rather extreme standpoint," although Schelpe separates

these genera only by the character "Frond simple, entire to shallowly crenate" as opposed to "Frond pinnatifid to deeply pinnatifid," and adduces no other characters; there are in fact no other characters. Since I do not know of any other fern genera that are separated only by the character of blade division, and that only a difference between blades shallowly crenate as opposed to pinnatifid, my viewpoint does not seem unduly extreme. In fact, many fern genera that have blades normally pinnatifid to compound have some species with simple blades, e.g. *Adiantum*, *Trichomanes*, *Lindsaea*, *Polystichum*, *Thelypteris*, *Asplenium*, *Polypodium*, in fact many large genera.

The new combination *Xiphopteris albobrunnea* (Baker) Schelpe is proposed, based on *Polypodium albobrunneum* Baker (1877), but *Polypodium sechellarum* Baker (1874) is prior. Schelpe rejects the latter on the ground that it was based on two elements, one of the syntypes representing *X. albobrunnea* and the other *X. villosissima* subsp. *subpinnata*. Schelpe also states that the original description is not conclusive as to which element should bear the name *sechellarum*, and so rejects the name for either. This is contrary to the Code and to usual taxonomic procedures, which provide the workers should select lectotypes where these have not been provided. These lectotypes can be and frequently are quite arbitrary, where there is no special reason to select one rather than another element. But here there is a clear choice, since one of the syntypes is from the Seychelles Islands and the other from Mauritius; since Baker chose the specific epithet "*sechellarum*" he obviously had this Seychelles specimen in mind, and so it should be the lectotype. Therefore, I here designate *Horne 194* (K), from Mahé, Seychelles, as lectotype, which means that this epithet replaces *albobrunnea*. The following new combination is thus necessary: *Grammitis sechellarum* (Baker) Morton (*Polypodium sechellarum* Baker in Hook. & Bak. Syn. Fil. ed. 2, 508. 1874). Those who wish to continue to recognize *Xiphopteris* as a distinct genus will have to make the appropriate new combination.

Salvinia rotundifolia Willd. is recognized as adventive in the Lukungo River, Congo, but as I pointed out (Contr. U. S. Nat.

Herb. 38: 75. 1967) this species has been misidentified by recent authors; the type in the Willdenow Herbarium is clearly a synonym of *S. auriculata* Aubl. I am not quite sure of the proper name for the species that has been called *S. rotundifolia* by Weatherby and others, but it may be *S. minima* Baker. Schelpe also records *S. auriculata* Aubl. from Lake Kariba, where it is a serious pest; however, I have had an intimation from workers who are studying this problem that the Lake Kariba plant is not really *A. auriculata*, but a sterile pentaploid, which would indicate that it is probably a recent hybrid that is spreading solely by vegetative means.

Schelpe's treatment of *Elaphoglossum* is going to be especially useful, because this is one of the most difficult genera throughout the tropics. The key is based almost wholly on scale characters, which is doubtless inevitable, since the species are so uniform in most ways other than the scales. Recent studies of the stipe anatomy and spores indicate that there may be some additional usable characters.

It is an open question whether *Pteris quadriaurita* Retz. is a species or an aggregate of many nearly allied species. Schelpe indicates that the question is not solved; in his treatment he is conservative and recognizes only one species, with four subspecies, which are not keyed out. *Cheilanthes*, one of the larger genera treated, is regarded in an inclusive sense, including *Notholaena* and *Aleuritopteris*, although *Aspidotis* is segregated, but *Polypodium* is split up, following Ching's lead, into *Pleopeltis*, *Phymatodes*, *Microgramma*, *Microsorium*, and *Polypodium*.

It should be mentioned that Schelpe recognizes *Phymatodes* K. B. Presl (Tent. Pterid. 195. 1836) as a valid genus, but in publishing this generic name Presl cited as synonyms *Dipteris* Reinw. and *Microsorium* Link, both earlier validly published and legitimate genera. Therefore, by Art. 69 of the Code, *Phymatodes* Presl was a superfluous name, and consequently illegitimate, since the earlier name *Dipteris* should have been adopted instead of a new generic name. *Phymatodes* is, by Art. 7, Note 4, typified by the type of the name that ought to have been adopted, namely by *Dipteris conjugata*; it is a straight synonym of *Dipteris*. The name

Phymatodes could be used in Schelpe's sense by conservation, but this hardly seems necessary. Its group is a small one, and is usually united with *Microsorium*, even by those who split up *Polypodium*, such as Copeland, who is by no means conservative in his recognition of genera in this group. Schelpe separates *Phymatodes* from *Microsorium* by the former having paraphyses in the sori and the latter not, but even if true this is not necessarily a generic character, and that it is always true remains to be demonstrated. Schelpe had only a single species of *Phymatodes* and only two, closely allied, of *Microsorium*. The numerous Malaysian species of these groups have hardly been investigated.

Schelpe uses the spelling "*Microsorium*," as is usual and correct in my opinion. The name was originally spelled "*Microsorum*" by Link (Hort. Berol. 2: 110. 1833), and this spelling was adopted by Sledge in his treatment of the Polypodiaceae of Ceylon, but it was later changed by Link himself (Fil. Sp. 116, 135, 1841) to *Microsorium*. The Greek "soros," generally Latinized as "sorus," is masculine, and if Link had wanted to make a generic name from it he would have called it "*Microsorus*," just as he proposed *Cyclosorus* and *Camptosorus*. Instead, he evidently intended a diminutive, the Greek "-ion," Latinized usually as "ium," on the analogy of *Pteridium*, and so the original ending "um" was properly corrected to "ium."—C.V.M.

A NEW NAME FOR A SPECIES OF POLYPODIUM FROM NORTH-WESTERN NORTH AMERICA, by Frank A. Lang. *Madroño* 20: 53-60. 1969.—Lang has investigated the western *Polypodium hesperium* Maxon cytologically and finds that there are two cytotypes, a diploid and a tetraploid, which can be distinguished morphologically. The type of *P. hesperium* corresponds to the tetraploid; it has the sori oval and medial, the rhizome with a sweetish, licorice taste, and the rhizome scales without a dark median stripe. It occurs mostly in the interior, east of the Cascade Mountains. The diploid has the sori circular and submarginal, the rhizome acrid, and the rhizome scales often with a median dark stripe. It occurs mostly in the western mountains from British Columbia to the Sierra Nevada, but there are a few specimens from elsewhere

(Wyoming, Colorado, Arizona). This diploid plant is called "*Polypodium montense* F. A. Lang, nom. nov.," and *Polypodium amorphum* Suksd. Werdenda 1: 16. 1927, is cited as a synonym (Type: *Suksdorf 11667*). The holotype of *P. montense* is said to be *Lang 211*. This shows a confused concept, for if *P. montense* is a "nom. nov." i.e. a new name for a species previously published then it must have the same type as the earlier name, that is, the type of *P. montense* would have to be *Suksdorf 1166*. Actually, since Lang gives a new Latin description and cites a new and different type, his species is apparently really considered a new species. However, it is in my opinion a superfluous name, since the legitimate species *P. amorphum* Suksd. is cited as a synonym and that name should have been adopted. Lang's reason for rejecting *P. amorphum* is that he considers it a monstrosity to be rejected under Art. 71 of the Code. He defines a monstrosity as "a plant that deviates greatly from the natural form of character, is abnormal, or is malformed," but this is by no means what the Code means by a monstrosity. A true monstrosity would be something like *Spondylantha* Presl, which was based on a plant of *Cissus sicyoides* that was so transformed by a smut that it was not recognizable as a *Cissus* at all. But *Polypodium amorphum* is not like that at all; it merely has somewhat abnormal leaves but they are recognizable as belonging to Lang's species since it is cited as an unquestionable synonym. Many species have been described from somewhat abnormal specimens, e.g., *Polypodium trifurcatum* L., which was based on a plant with the fronds forked at the apex; the name obviously applies to a common West Indian species. So far as I know no plant with the leaves forked at the tip has ever again been found, yet no one has ever questioned the validity and legitimacy of the name *P. trifurcatum*. Therefore, the name *P. montense* must be rejected as a superfluous new name for *P. amorphum* Suksdorf.—C.V.M.

FLORA PALAESTINA, PART ONE, TEXT, by Michael Zohary. Israel Academy of Sciences and Humanities, Jerusalem, 364 pp. + 2 maps. 1966.—This flora, which includes the pteridophytes of Israel, is not new but has only recently come to my attention. As might be imagined from its aridity, Israel is not a "ferny"

country. In fact, there are only 15 species of pteridophytes that grow there. Any Fern Society members visiting Palestine will be able to identify the ferns they see merely by recognizing the genera, for each genus is represented usually by only one species. As a matter of fact, the families are so finely split that there is mostly only one species in each. The species are: *Equisetum telmateia*, *E. ramosissimum*, *Ophioglossum lusitanicum*, *Cheilanthes fragrans*, *C. catanensis* (*Notholaena vellea*), *Adiantum capillus-veneris*, *Pteris vittata*, *Anogramma leptophylla*, *Thelypteris palustris*, *Asplenium adiantum-nigrum* subsp. *onopteris*, *Ceterach officinarum*, *Phyllitis sagittata*, *Dryopteris villarii* subsp. *australis*, *Polypodium vulgare* var. *serratum*, and *Marsilea minuta*.—C.V.M.

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